

REMARKS

Claims 29-48 are pending and claims 39-48 have been withdrawn from consideration, leaving claims 29-38 at issue. Of the claims at issue, claim 29 is the only independent claim. Attachment A submitted herewith shows the status of the claims at issue including changes made thereto.

REJECTION OF THE CLAIMS UNDER 35 U.S.C. §§ 102 and 103

The applicants respectfully traverse the rejection of the claims as anticipated by, or as obvious over, one or more of U.S. Patent No. 3,440,836 to Petersen and U.S. Patent No. 4,002,029 to Jones. Reconsideration of the foregoing rejections is respectfully requested.

Independent claim 29, and claims 30-38 dependent directly or indirectly thereon, as amended recite a method of assembling a motor shaft with a motor component. The method comprises providing a motor shaft having a first surface geometry and installing a fan impeller onto the motor shaft. The method further includes providing a shaft extension having a second surface geometry and interengaging the first surface geometry of the motor shaft with the second surface geometry of the shaft extension so that the shaft extension rotates with the motor shaft. Additionally, the shaft extension may be fitted into a lower assembly. Because none of the cited art discloses or suggests a structure including a motor shaft, a shaft extension and a fan impeller, wherein the motor shaft and the shaft extension have surface geometries that fit together, no single reference or any combination of references can anticipate or render the claims at issue obvious.

Petersen discloses a flexible cable assembly for use in coupling speedometers to vehicle transmissions. A shaft (12), which is driven from a vehicle automotive transmission, receives an end (56) of an elongated coupler (42) so that the shaft (12) and the elongated coupler (42) are rotationally coupled. The rotational motion of the shaft (12) is coupled to a speedometer so that vehicle speed may be communicated to a driver of the vehicle.

In contrast to claim 29, Petersen does not disclose providing a motor shaft or installing a fan impeller onto a motor shaft. In fact, the shaft (12) is not a motor shaft at all, but, rather, is a shaft driven by the transmission of an automobile to communicate vehicle speed. Additionally, even assuming the shaft (12) of Petersen could be considered to be a motor shaft, which is a point that the applicants do not concede, Petersen does not disclose

the use of a fan impeller coupled to the shaft (12). Because the shaft (12) of Petersen is used for speedometer purposes and not for cooling or vacuum generation purposes, there would be no motivation to include a fan impeller in the arrangement of Petersen. In fact, the addition of a fan impeller to Petersen, provided there was such a motivation, would destroy the functionality of Petersen because the Petersen arrangement is designed to be compact and to fit in tight spaces on the underside of a vehicle. Because Petersen does not disclose or suggest a motor shaft, much less a motor shaft having a fan impeller installed thereon, it follows that Petersen cannot anticipate claim 29 or any claims dependent thereon.

While Jones discloses a pump assembly including a motor shaft (36) and a driven shaft (38) for operating hydraulic implements, Jones, like Petersen, does not disclose or suggest installing a fan impeller on the motor shaft (36). Jones discloses that an electric motor (16) and a pump (14) are coupled with splined details (40, 42) and that the coupling, the motor (16) and the pump (14) are sealed within a housing (28) by a plurality of bolts (18). Absent from Jones is any disclosure pertaining to a fan impeller mounted on the motor shaft (36). In fact, not only is there no disclosure of a fan impeller in Jones and no motivation to add a fan impeller to Jones, it would be impossible to add a fan impeller to Jones because the components of Jones are sealed within the housing (28). Additionally, modifying the structure of Jones to accommodate a fan impeller would render Jones unfit for its intended purpose of having the component sealed within the housing (28). Accordingly, because Jones does not disclose or suggest the use of a fan impeller and because adding a fan impeller to Jones would be impossible given the sealed nature of the components of Jones, it follows that Jones cannot anticipate claim 29 or any claims dependent thereon.

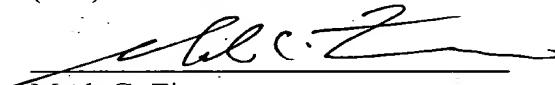
Furthermore, it is clear that the prior art must teach or suggest all claim elements and make a suggestion of, or provide an incentive for, a claimed combination of elements to establish a *prima facie* case of obviousness. See, *In re Oetiker*, 24 U.S.P.Q.2d 1443, 1446 (Fed. Cir. 1992); *Ex parte Clapp*, 227 U.S.P.Q. 972, 973 (Bd. Pat. App. 1985); *In re Royka*, 490 F.2d 1981 (CCPA 1974) and M.P.E.P. §2143. Because neither Petersen nor Jones discloses or suggests providing a motor shaft having a first surface geometry that engages with a shaft extension having a second geometry, wherein a fan impeller is installed on the motor shaft, as recited by the claims at issue, no combination of these references can render the pending claims obvious.

It is also clear that if a proposed modification to a prior art invention would render that invention unsatisfactory for its intended purposes, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 221 U.S.P.Q. 1125 (Fed. Cir. 1984). Adding a fan impeller to either of Petersen or Jones would render the respective devices unsatisfactory for their intended purposes. The addition of a fan impeller would occupy undue space in the already cramped environment in which the Petersen arrangement is used and would destroy the sealed nature of the Jones device.

For the foregoing reasons, reconsideration and withdrawal of the rejections of the claims and allowance thereof are respectfully requested.

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February 19, 2002



**ATTACHMENT A - THE STATUS OF THE CLAIMS AT ISSUE
INCLUDING MARKINGS TO SHOW THE CHANGES MADE**

29. (Amended) A method of assembling a motor shaft with a motor component, the method comprising the steps of:
- providing a motor shaft having a first surface geometry comprising a non-circular cross section;
 - installing a fan impeller onto the motor shaft;
 - providing a shaft extension having a first end having a second surface geometry comprising a non-circular cross section adapted to mate with the first surface geometry of the motor shaft;
 - interengaging the first surface geometry of the motor shaft with the second surface geometry of the shaft extension so that the shaft extension rotates with the motor shaft; and
 - installing a second end of the shaft extension into a lower assembly.
30. The method of claim 29, wherein the first surface geometry comprises a hexagonal cross section.
31. The method of claim 29, wherein the first surface geometry comprises a square cross section.
32. The method of claim 29, wherein the first surface geometry defines a compartment within the motor shaft.
33. (Amended) The method of claim 29, further comprising a step of tightening a retainer onto the motor shaft and into abutment with the fan impeller.
34. The method of claim 33, wherein said retainer comprises a hexagonal threaded nut.
35. The method of claim 29, wherein the lower assembly comprise a pump impeller.

36. The method of claim 29, wherein the lower assembly comprises a bearing.
37. The method of claim 36, wherein the bearing comprises a powdered metal bearing.
38. The method of claim 36, wherein the bearing comprises a roller ball bearing.